Senate Bill 2 STEM Recommendations	Workgroup *Suggestions*	Expected Outcomes (Goals: 1,3 5-yr)	Evaluation measures?	Agency Roles (Who, other stakeholders?)	Costs (State Budget Request/Other)
Recommendation 1. (SB2.a)					
Energize and fund a statewide public awareness campaign to help Kentuckians understand the critical importance of STEM to their own economic competitiveness and to that of the Commonwealth					
	• Build public ownership of the problem and its solutions				
	• Publicize Kentucky's need to cultivate our STEM intellectual capital.				
	• Encourage students to excel in STEM classes and pursue careers in STEM fields.				
Recommendation 2. (SB2.b)					
Create incentives and a supportive environment for students, teachers and inst5itutions that pursue, succeed, and excel in STEM disciplines throughout the P-20 pipeline.					
	• Investigate differential investments for STEM subjects including but not limited to a(differential compensation, b) technology infrastructure, c) laboratory equipment, d(discretionary fund, e) supplies, f) field trips, g) professional travel allowances, and h) mathematics and science coaches and mentors.				
	• Develop more home-grown Kentucky STEM talent by creating new college scholarships for STEM majors, including pre-service elementary as well as middle grades and secondary teachers with a minor or area of mathematice and/or science.				
	• Reduce student disincentives and increase incentives to take rigorous STEM courses through such strategies as revising KEES and Governors Scholarship.				
Recommendation 3 (SB2.c)					

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Implement international best practices in professional development programs for P-16 STEM teachers to increase the intensity, duration and rigor of professional development.					
	• Convene a professional development oversight committee to review current professional development in mathematics and science and make specific recommendations centered on the needs of teachers across Kentucky.				
	• Structure a high quality mathematics and science professional development program that addresses teachers' content and pedagogy needs.				
Recommendation 4 (SB2.d)					
Improve teacher preparation programs and encourage people with undergraduate and graduate STEM degrees to enter the teaching profession.					
	• Rethink how we recruit, prepare, and retain STEM teachers (i.e. raise standards, increase access, flexible alternative routes to certification.)				
	• Consider incentives to recruit and retain STEM teachers, including loan forgiveness programs for STEM teachers.				
	• Consider formal education providers as partners in recruiting students into STEM teaching fields.				
Recommendation 5 (SB2.e)					
Revolutionize how STEM subjects are taught, learned, and assessed and implement a statewide research-based STEM curriculu,m that is aligned with global workforce and academic standards.					

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	• Integrate a comprehensive, standardized, internationally benchmarked P16 STEM curriculum and make it accessible to all students through the latest instructional techniques and technologies and available through dual credit and AP mathematics and science courses. Emphasize depth of learning as well as breadth of learning in STEM subjects.				
	• Upgrade assessment strategies for student learning in the STEM disciplines, such as standardized end-of-course exam and full use of the ACT educational Planning and Assessment System (PEAS). Ensure alignmnet of any assessment with the developing standards'-based curricula.				
	• Create curricular, research, and innovation opportunities in environmental and sustainable energy (a unique Kentucky initiative) and other emerging technologies for STEM students throughout the pipeline (P-20).				
Recommendation 6 (SB2.f)					
Engage business, industry, and civic leaders to improve STEM education and skills in the Commonwealth and create incentives for Kentucky business that employ and invest in STEM educated students.					
	• Develop vertical teams such as expanded P-16 Councils to facilitate the local collaboration of P-16 educators, businesses, and government and to facilitate collaborative learning such as AP and international Baccalaureate programs, the Kentucky Academy for mathematics and Science, and informal educational opportunities.				

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	• Create opportunities for STEM educators and students to apply classroom knowledge to real-world applications in the workplace.				
	• Create opportunities for P-16 students to participate in STEM clubs and competitions such as science fairs, robotics competitions, American Math Competitions, and Math Counts.				
	• Contribute leadership expertise and support for the STEM public awareness campaign.				
	• Expand and improve STEM workforce development and training programs so they teach the skills needed in today's knowledge economy, especially at the Area Technology Centers.				
	• Provide leadership in developing a statewide strategy for energy sustainability and independence. 3/4 increase corporate grant and in-kind funding of STEM education and expand the reach of programs statewide.				
	• Explore incentive programs for businesses that commit to hiring STEM grauduates from Kentucky institutions and invest in Kentucky STEM research and education.				
Recommendation 7 (SB2.g)					
Develop an ongoing, coordinated, statewide STEM initiative that maximizes the impact of resources among state agencies, schools, colleges and universities and businesses and is focused on developing and attracting STEM-related jobs to Kentucky.					
	• Develop a report card that uses rigorous program assessment to measure Kentucky's progress in implementing STEM initiatives.				
	• Collect and disseminate global best practices focused on STEM instruction.				

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	• Create a standing body of education, business, economic development, government and nonprofit professionals to oversee and coordinate STEM initiatives at the statewide level.				
	• Provide incentives for faculty and students to help catalyze STEM company formation or growth in the Commonwealth according to the "Statewide Strategy for Economic Development."				
SB2 (h)					
Targeting energy sustainability problems and opportunities in Kentucky and the nation as a primary objective of statewide STEM enhancements					
SB2 (i)					
Developing STEM mentoring programs that partner students in grades five through 12, their teachers, or both, with engineers, business professionals, college or university professors, university students, or others with expertise in the STEM disciplines to link academic coursework with the real world, underscoring the importance of rigorous academic preparation and encouraging pursuit of careers in the STEM disciplines.					
SB2 (j)					
Creating recognition awards and activities and financial support for individuals, businesses, or organizations that exhibit excellence in mentoring within the STEM disciplines.					